

S-1K



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/657,404      | 09/08/2000  | Weimin Sun           | 279.279US1          | 3413             |

21186 7590 10/01/2002

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. BOX 2938  
MINNEAPOLIS, MN 55402

EXAMINER

OROPEZA, FRANCES P

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3762

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/657,404

Applicant(s)

SUN ET AL.

Examiner

Frances P. Oropeza

Art Unit

3762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 September 2000.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/8/00 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 15, line 2, “the patient” lacks antecedent basis.

In claims 1 and 15, line 4, “the patient’s maximum exercise capacity” lacks antecedent basis.

Relative to claims 1 and 3 and claims 15 and 17, in claims 1 and 15, line 11, “a specified period time” is awkward and unclear. When amending, the Examiner calls attention to the phrase “a specified time period” in claims 3 and 17, lines 4-5, so the Applicant can clearly amend as distinguish these elements.

In claims 3, and 17, line 6, “the slope” lacks antecedent basis.

Claims 3 and 17 are unclear because in line 7, it appears “a specified maximum sensor indicated rate” should be --the specified maximum sensor indicated rate--.

Claims 5 and 19 are unclear because in line 2, it appears “a slope” should be --the slope--.

In claims 10 and 24, line 2, “the percentage” lacks antecedent basis.

Claim 11 is unclear because in lines 7-8, it appears “a long-term maximum exertion level” should be --the long-term maximum exertion level--.

In claim 11, line 9, “the slope” lacks antecedent basis.

In claim 11, lines 9-10, "the difference" lacks antecedent basis.

In claim 11, lines 10-11, "the sensor target rate" lacks antecedent basis.

Claim 13 is unclear because in line 1, it appears "a maximum exertion level" should be --the maximum exertion level--.

Claim 13 is unclear because in lines 1-2, it appears "a percentage" should be --the percentage--.

Claim 13 is unclear because in lines 3-4, it appears "a sensor target rate" should be --the sensor target rate--.

In claim 14, line 3, "the weekly average maximum sensor" lacks antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Kay et al. (US 6411850). Kay et al. disclose a method for automatically determining an anaerobic breakpoint for an adaptive rate pacemaker and for automatically adjusting the pacing rate based on the slope of the rate responsive curve. The cardiac pacemaker pacing signal is modified by the sensed

ventilation and the pacing rate is modified in response to ventilatory breakpoint. The control circuit matches the peak ventilation, read as the MAR, with the maximum pacing rate (c 3, ll 13-30). Once the breakpoint is reached, the pulse is attenuated based on the rate response slope (c 5, ll 10-44; c 7, ll 20-37; figure 1). The dual slope curve of the respiratory rate (figure 1) and the breakpoint, read as the MSR, can be determined from data collected over a period of time to define the respiratory reserve by measuring ventilation during exercise (c 2, ll 48-65 and c 7, ll 20-24). The breakpoint and curve can also be determined using a pacemaker programmed to determine the ventilatory threshold and peak ventilation which then matches the peak ventilation to the maximal pacing rate (c 7, ll 1-10). Short-term average relative minute ventilation, 30 second, and long-term average relative minute ventilation, 2 hour, are used to regulate the sensor rate in correspondence to metabolic demand using a Response Factor (c 8, ll 22-42). The Response Factor slope, which maps the patient's respiratory reserve, is dynamically adjusted based on the maximum daily sensor rate excursions and a weekly average of these readings (c 8, ll 43-61). Historically, a fixed percentage of the respiratory reserve is noted as a means used to adjust the pacing rate (c 8, ll 54-57).

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fran Oropeza whose telephone number is (703) 605-4355. The examiner can normally be reached on Monday – Thursday from 6 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela D. Sykes can be reached on (703) 308-5181. The fax phone numbers for the

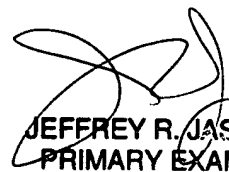
Art Unit: 3762

organization where this application or proceeding is assigned are (703) 306-4520 for regular communication and (703) 306-4520 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858.

Frances P. Oropeza  
Patent Examiner  
Art Unit 3762

*FPO*  
*9/27/02*

  
JEFFREY R. JASTRZAB  
PRIMARY EXAMINER

*3762*

*9/27/02*